APLS: Illness Scenario 3

This is a Teaching Scenario. Some flexibility in how it progresses is possible according to individual learner needs

History {initial candidate briefing prior to arrival of child}

A 7 year old girl with asthma, is in transit by ambulance to emergency with a 2 day history of increasing cough and wheeze. Ambulance called to home because of severe breathing difficulties. They are giving nebulized salbutamol and oxygen in transit.
Guide Weight: 25 kg

Initial impression {provide information as candidate assesses child and applies monitoring}

Ambulance officers report little response to salbutamol. She is pale. Only able to say a few words. RR 40. HR 150. Tracheal Tug. Saturation 90% in oxygen on ambulance monitor.

Additional History & Observations

There is a history of multiple admissions to hospital as young child and infant. Has been not taking preventers for two years. Over the last two days she has been taking frequent doses of inhaled salbutamol. She is unable to find her spacer.

Clinical Course {to be given to candidate as they progress}

There is no improvement with a further dose of nebulised salbutamol and ipratropium. Oxygen saturations remain 91% in oxygen. Continuous nebulised salbutamol with two further doses of ipratropium. IVI $MgSO_4$, aminophylline or salbutamol and IV steroids are needed. Slow improvement.
Unless escalation of therapy with IVI $MgSO_4$, aminophylline or salbutamol then saturations worsen and bradycardia develops.

INSTRUCTORS INFORMATION

Key Treatment Points ☑

Airway	Establish airway patency High flow O_2 via face mask commenced early Titrate O_2 therapy to SpO_2 94-98% when stable	
Breathing	Position child to enhance breathing	
Circulation	Intravenous access	
Specific Therapy	Nebulised Salbutamol IV steroids IV infusion $MgSO_4$, aminophylline or salbutamol.	

Diagnosis: Severe Acute on Chronic Asthma

Learning objectives

At the end of this session participants should be able to:

- Apply the structured approach to assessment, management, and diagnosis of severe asthma
- Recall and apply the principles of management of severe asthma in their own practice

Potential Issues to be Discussed

- Severity of asthma. History in assessing this.
- Oxygen saturations. Role of blood gases.
- Escalation of therapy.
- Intravenous therapy $MgSO_4$, aminophylline or salbutamol.

Management of acute asthma. Used with permission and endorsed by the Paediatric Improvement Collaborative
https://www.rch.org.au/clinicalguide/guideline_index/asthma_acute/

APLS: Illness Scenario 4

This is a Teaching Scenario. Some flexibility in how it progresses is possible according to individual learner needs

History {initial candidate briefing prior to arrival of child}

A 4 year old child presents with a generalised tonic-clonic seizure. He has received buccal midazolam from the paramedics in the ambulance. On arrival he is not convulsing but is responsive only to painful stimuli.
Estimated weight 15 kg.

Initial impression {provide information as candidate assesses child and applies monitoring}

As the candidate starts to assess the patient, he has a generalised tonic-clonic seizure and then becomes hypoxemic with resp depression requiring BVM ventilation. Conscious level initially responding only to painful stimuli and then unresponsive. Febrile 39.7°C.

Clinical Course {to be given to candidate as they progress}

With airway opening and BVM ventilation O_2 sat and bradycardia improves. There is no response to a second dose of benzodiazepine and the convulsion continues.
BSL is 8.2 mmol/L. Plans to manage the airway, including ensuring the presence of an experienced airway clinician should be initiated. The convulsion eventually stops with an infusion of intravenous levetiracetam or phenytoin.

INSTRUCTORS INFORMATION

Key Treatment Points ☑

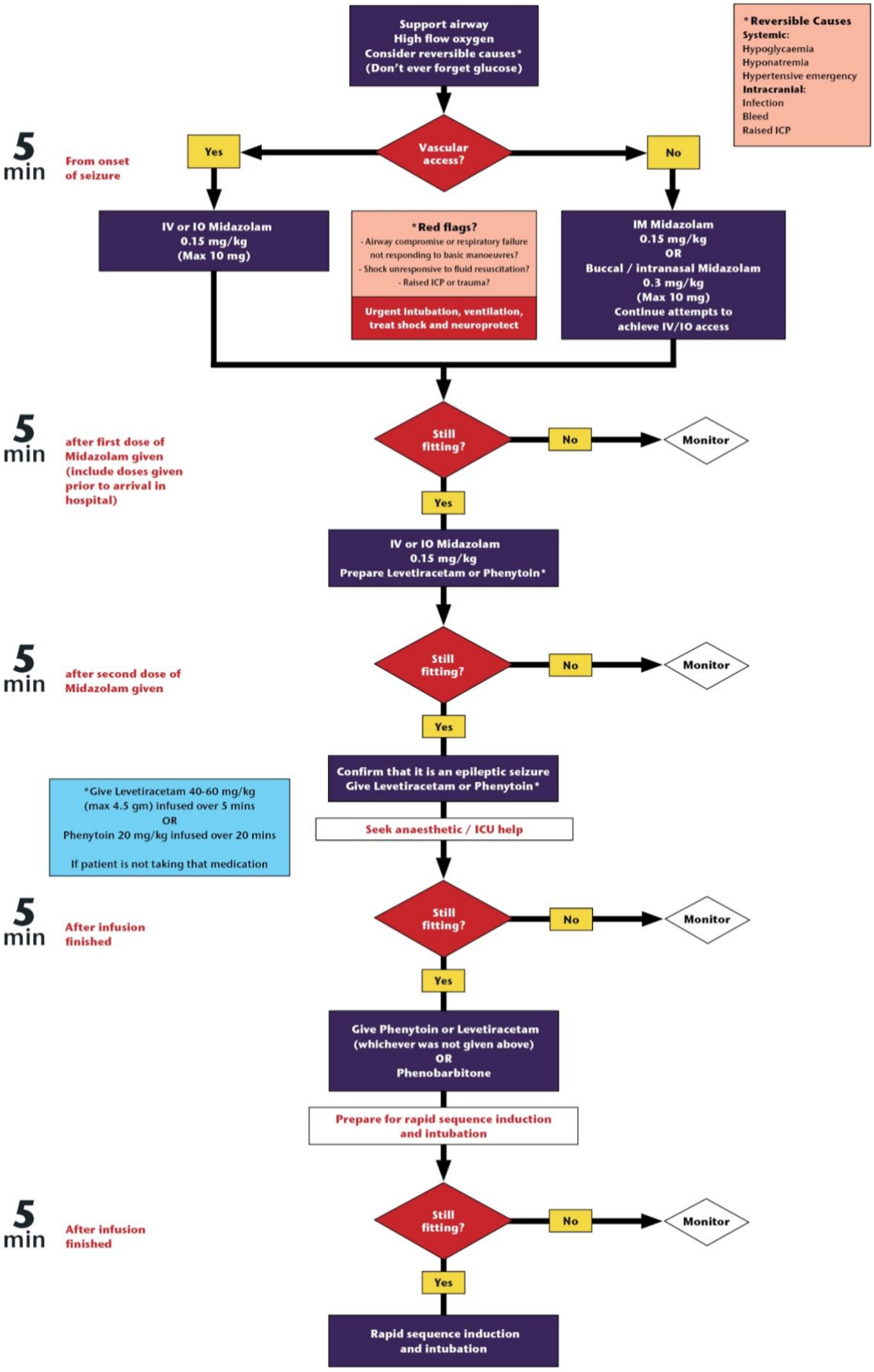
Airway	Establish airway patency High flow O_2 via face mask commenced early Titrate O_2 therapy to SpO_2 94-98% when stable Arrange for intubation or intubate	
Breathing	BVM ventilation with 100% O_2	
Circulation	IV/IO access	
Specific Therapy	Status epilepticus protocol Blood sugar check	

Diagnosis: Prolonged Febrile Convulsion

Learning objectives

At the end of this session participants should be able to:

- Apply the structured approach to management and diagnosis during convulsive status epilepticus (CSE)
- Recall and classify the potential causes of CSE
- Recall and apply the APLS status epilepticus algorithm in their own practice


Support airway
High flow oxygen
Consider reversible causes*
(Don't ever forget glucose)
*Reversible Causes
Systemic:
Hypoglycaemia
Hyponatremia
Hypertensive emergency
Intracranial:
Infection
Bleed
Raised ICP
5 min
From onset of seizure
Vascular access?
Yes
No
IV or IO Midazolam
0.15 mg/kg
(Max 10 mg)
*Red flags?
- Airway compromise or respiratory failure not responding to basic manoeuvres?
- Shock unresponsive to fluid resuscitation?
- Raised ICP or trauma?
Urgent intubation, ventilation, treat shock and neuroprotect
IM Midazolam
0.15 mg/kg
OR
Buccal / intranasal Midazolam
0.3 mg/kg
(Max 10 mg)
Continue attempts to achieve IV/IO access
5 min
after first dose of Midazolam given (include doses given prior to arrival in hospital)
Still fitting?
No
Monitor
Yes
IV or IO Midazolam
0.15 mg/kg
Prepare Levetiracetam or Phenytoin*
5 min
after second dose of Midazolam given
Still fitting?
No
Monitor
Yes
Confirm that it is an epileptic seizure
Give Levetiracetam or Phenytoin*
Seek anaesthetic / ICU help
*Give Levetiracetam 40-60 mg/kg
(max 4.5 gm) infused over 5 mins
OR
Phenytoin 20 mg/kg infused over 20 mins
If patient is not taking that medication
5 min
After infusion finished
Still fitting?
No
Monitor
Yes
Give Phenytoin or Levetiracetam
(whichever was not given above)
OR
Phenobarbitone
Prepare for rapid sequence induction and intubation
5 min
After infusion finished
Still fitting?
No
Monitor
Yes
Rapid sequence induction and intubation

Potential Issues to be Discussed

- Discuss algorithm: obtaining IV or IO access after 1st dose of IM/Intranasal/buccal midazolam (a copy of the algorithm will be available), role of levetiracetam
- Discuss seizures in children with epilepsy vs first seizure presentation
- Discuss convulsions with a fever
- Antibiotics to cover meningitis/encephalitis
- RSI for intubation and seizures
- "Extremity" for fever, rash